



SEQUENCE LISTING

#7

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Kuberasampath, Thangavel
Rueger, David
Ozkaynak, Engin

<120> Osteogenic Devices

<130> STK-008CN

<140> US 09/754,831

<141> 2001-01-03

<150> US 08/375,901

<151> 1995-01-20

<150> US 08/145,812

<151> 1993-11-01

<150> US 07/995,345

<151> 1992-12-22

<150> US 07/315,342

<151> 1989-02-23

<150> US 07/232,630

<151> 1988-08-15

<150> US 07/179,406

<151> 1988-04-08

<160> 72

<170> PatentIn version 3.0

<210> 1

<211> 96

<212> PRT

<213> Artificial Sequence

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<223> Biosynthetic Protein COP5

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Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala
1 5 10 15

Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro
20 25 30

Leu Ala Asp His Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
35 40 45

Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr
50 55 60

Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val
65 70 75 80

Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
85 90 95

<210> 2
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<220>
<223> Biosynthetic protein COP7

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Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn Asp Trp Ile Val Ala
1 5 10 15

Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro
20 25 30

Leu Ala Asp His Leu Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
35 40 45

Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr
50 55 60

Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val
65 70 75 80

Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg
85 90 95

<210> 3
<211> 97
<212> PRT
<213> Artificial Sequence

<220>
<223> endochondral bone formation inducing protein

<220>
<221> misc_feature
<223> wherein Xaa at positions 2, 4, 6, 8, 11, 12, 14, 15, 16, 18, 20, 21, 23, 26, 28, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 44, 45, 47, 48, 50, 51, 52, 54, 55, 56, 57, 59, 60, 63, 65, 66, 67, 68, 69, 70, 71, 72, 75, 76, 77, 78, 79, 80, 82, 84, 85, 87, 88, 90, 92, 93, 95, and 97 is any amino acid

<400> 3

Leu Xaa Val Xaa Phe Xaa Asp Xaa Gly Trp Xaa Xaa Trp Xaa Xaa Xaa
1 5 10 15

Pro Xaa Gly Xaa Xaa Ala Xaa Tyr Cys Xaa Gly Xaa Cys Xaa Xaa Pro
 20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn His Ala Xaa Xaa Gln Xaa Xaa
 35 40 45

Val Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Pro Xaa Xaa Cys Cys Xaa Pro
 50 55 60

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 65 70 75 80

Val Xaa Leu Xaa Xaa Tyr Xaa Xaa Met Xaa Val Xaa Xaa Cys Xaa Cys
 85 90 95

Xaa

<210> 4
 <211> 102
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<220>
 <223> endochondral bone formation inducing protein

<220>
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 <223> wherein Xaa at positions 2, 3, 4, 5, 7, 9, 11, 13, 16, 17, 19, 20, 21, 23, 25, 26, 28, 31, 33, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 49, 50, 52, 53, 55, 56, 57, 59, 60, 61, 62, 64, 65, 68, 70, 71, 72, 73, 74, 75, 76, 77, 79, 80, 81, 82, 83, 84, 85, 87, 89, 90, 92, 93, 95, 97, 98, 100 and 102 is any amino acid

<400> 4

Cys Xaa Xaa Xaa Xaa Leu Xaa Val Xaa Phe Xaa Asp Xaa Gly Trp Xaa
 1 5 10 15

Xaa Trp Xaa Xaa Xaa Pro Xaa Gly Xaa Xaa Ala Xaa Tyr Cys Xaa Gly
 20 25 30

Xaa Cys Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn His Ala
 35 40 45

Xaa Xaa Gln Xaa Xaa Val Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Pro Xaa
 50 55 60

Xaa Cys Cys Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa
 65 70 75 80

Xaa Xaa Xaa Xaa Xaa Val Xaa Leu Xaa Xaa Tyr Xaa Xaa Met Xaa Val
 85 90 95

Xaa Xaa Cys Xaa Cys Xaa
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<210> 5
 <211> 97
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<220>
 <223> endochondral bone formation inducing protein

<220>
 <221> misc_feature
 <223> wherein Xaa at position 2 is a tyrosine, lysine or phenylalanine

<220>
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 <223> wherein Xaa at position 4 is an aspartic acid, a serine or a glutamic aci

<220>
 <221> misc_feature
 <223> wherein Xaa at position 6 is an arginine, a serine, a lysine or an alanine

<220>
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 <223> wherein Xaa at position 8 is a valine, a leucine or an isoleucine

<220>
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 <223> wherein Xaa at position 11 is an asparagine, a glutamine, an aspartic acid or a serine

<220>
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 <223> wherein Xaa at position 12 is a aspartic acid, glutamic acid or an asparagine

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 <221> misc_feature
 <223> wherein Xaa at position 14 is an isoleucine or a valine

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 <223> wherein Xaa at position 15 is an isoleucine or a valine

<220>
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 <223> wherein Xaa at position 16 is an alanine or a serine

<220>
<221> misc_feature
<223> wherein Xaa at position 18 is a proline, a glutamic acid, a leucine or a lysine

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<221> misc_feature
<223> wherein Xaa at position 20 is a tyrosine or a phenylalanine

<220>
<221> misc_feature
<223> wherein Xaa at position 21 is a histidine or an aspartic acid

<220>
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<223> wherein Xaa at position 23 is a phenylalanine, a tyrosine or an asparagine

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<223> wherein Xaa at position 26 is a histidine, a glutamic acid or a serine

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<223> wherein Xaa at position 28 is a glutamic acid or an alanine

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<223> wherein Xaa at position 30 is a proline, an alanine or a glutamine

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<223> wherein Xaa at position 31 is a phenylalanine or a tyrosine

<220>
<221> misc_feature
<223> wherein Xaa at position 33 is a leucine, a methionine or an isoleucine

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<221> misc_feature
<223> wherein Xaa at position 34 is an alanine, a proline or a threonine

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<223> wherein Xaa at position 35 is an aspartic acid, a glutamic acid or a lysine

<220>
<221> misc_feature
<223> wherein Xaa at position 36 is a histidine or a serine

<220>
<221> misc_feature
<223> wherein Xaa at position 37 is a leucine, a methionine or a phenyl alanine

<220>
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<223> wherein Xaa at position 38 is an asparagine or a lysine

<220>
<221> misc_feature
<223> wherein Xaa at position 39 is a serine, an alanine or a proline

<220>
<221> misc_feature
<223> wherein Xaa at position 40 is a threonine or a serine

<220>
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<223> wherein Xaa at position 44 is an isoleucine, a valine or a threonine

<220>
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<223> wherein Xaa at position 45 is a valine, an isoleucine or a leucine

<220>
<221> misc_feature
<223> wherein Xaa at position 47 is a threonine or a serine

<220>
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<223> wherein Xaa at position 48 is a leucine or an isoleucine

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<223> wherein Xaa at position 50 is an asparagine, a histidine or an arginine

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<223> wherein Xaa at position 51 is a serine, an alanine, a phenylalanine or an asparagine

<220>
<221> misc_feature
<223> wherein Xaa at position 52 is a valine or an isoleucine

<220>
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<223> wherein Xaa at position 54 is a proline or a serine

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<223> wherein Xaa at position 55 is a glycine or a glutamic acid

<220>
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<223> wherein Xaa at position 56 is a lysine, a glutamine, a threonine or a serine

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<223> wherein Xaa at position 57 is an isoleucine or a leucine

<220>
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<223> wherein Xaa at position 59 is a lysine or a glutamic acid

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<223> wherein Xaa at position 66 is a glutamic acid or a lysine

<220>
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<223> wherein Xaa at position 67 is a leucine or a glutamine

<220>
<221> misc_feature
<223> wherein Xaa at position 68 is a serine, a methionine or an

aspartic acid

<220>

<221> misc_feature

<223> wherein Xaa at position 69 is an alanine, an asparagine or a proline

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<221> misc_feature

<223> wherein Xaa at position 70 is an isoleucine, a serine or a valine

<220>

<221> misc_feature

<223> wherein Xaa at position 71 is a serine or a leucine

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<223> wherein Xaa at position 72 is a methionine, an alanine or a valine

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<221> misc_feature

<223> wherein Xaa at position 73 is a leucine or an isoleucine

<220>

<221> misc_feature

<223> wherein Xaa at position 75 is a leucine, a phenylalanine or a tyrosine

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<223> wherein Xaa at position 76 is an aspartic acid or a phenylalanine

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<221> misc_feature

<223> wherein Xaa at position 77 is a glutamic acid or an asparagine

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<223> wherein Xaa at position 78 is an asparagine or a glutamic acid

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<223> wherein Xaa at position 79 is a glutamine, a glutamic acid, a serine or a lysine

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<221> misc_feature

<223> wherein Xaa at position 80 is an asparagine or an aspartic acid

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 <223> wherein Xaa at position 81 is a valine or a lysine

<220>
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 <223> wherein Xaa at position 83 is a leucine or an isoleucine

<220>
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 <223> wherein Xaa at position 85 is an asparagine, an arginine or a histidine

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 <223> wherein Xaa at position 86 is a tyrosine or a lysine

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 <223> wherein Xaa at position 87 is a glutamine, an arginine or a proline

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 <223> wherein Xaa at position 88 is an aspartic acid, a glutamic acid or an asparagine

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 <223> wherein Xaa at position 89 is a methionine or a glutamic acid

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 <223> wherein Xaa at position 92 is a glutamic acid or an arginine

<220>
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 <223> wherein Xaa at position 93 is a glycine, an aspartic acid, a serine or a glutamic acid

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 <223> wherein Xaa at position 94 is a cysteine or an alanine

<220>
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 <223> wherein Xaa at position 96 is a cysteine or a histidine

<400> 5

Leu Xaa Val Xaa Phe Xaa Asp Xaa Gly Trp Xaa Xaa Trp Xaa Xaa Xaa
 1 5 10 15

Pro Xaa Gly Xaa Xaa Ala Xaa Tyr Cys Xaa Gly Xaa Cys Xaa Xaa Pro
 20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn His Ala Xaa Xaa Gln Xaa Xaa
 35 40 45

Val Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Pro Xaa Xaa Cys Cys Xaa Pro
 50 55 60

Thr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa
 65 70 75 80

Xaa Val Xaa Lys Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa Xaa Gly Xaa Arg
 85 90 95

His

<210> 6
 <211> 101
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> endochondral bone formation inducing protein

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<220>
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 <223> wherein Xaa at position 5 is a proline, a serine, a glutamic acid or a glutamine

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 <221> misc_feature
 <223> wherein Xaa at position 7 is a tyrosine, a lysine or a phenylalanine

<220>
 <221> misc_feature
 <223> wherein Xaa at position 9 is an aspartic acid, a serine or a glutamic acid

<220>
 <221> misc_feature
 <223> wherein Xaa at position 11 is an arginine a serine, a lysine or an alanine

<220>
 <221> misc_feature
 <223> wherein Xaa at position 13 is a valine, a leucine or an isoleucine

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 <221> misc_feature
 <223> wherein Xaa at position 16 is an asparagine, a glutamine, an aspartic acid or a serine

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 <223> wherein Xaa at position 17 is an aspartic acid, a glutamic acid or an asparagine

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 <223> wherein Xaa at position 19 is an isoleucine or a valine

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 <223> wherein Xaa at position 20 is a valine or an isoleucine

<220>
 <221> misc_feature
 <223> wherein Xaa at position 21 is an alanine or a serine

<220>
 <221> misc_feature
 <223> wherein Xaa at position 23 is a proline, a glutamic acid, a leucine or a lysine

<220>
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 <223> wherein Xaa at position 25 is a tyrosine or a phenylalanine

<220>
 <221> misc_feature
 <223> wherein Xaa at positon 26 is a histidine or an aspartic acid

<220>
 <221> misc_feature
 <223> wherein Xaa at position 28 is a phenylalanine, a tyrosine or an asparagine

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 <223> wherein Xaa at position 31 is a histidine, a glutamic acid or a serine

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 <223> wherein Xaa at position 33 is a glutamic acid or an alanine

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 <223> wherein Xaa at position 35 is a proline, a glutamine or an alanine

<220>
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 <223> wherein Xaa at position 35 is a proline, a glutamine or an alanine

<220>
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 <223> wherein Xaa at position 38 is a leucine, a methionine oe an isoleucine

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 <223> wherein Xaa at position 39 is an alanine, a proline or a threonine

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 <223> wherein Xaa at position 40 is an aspartic acid, a glutamic acid or a lysine

<220>
 <221> misc_feature

<223> wherein Xaa at position 41 is a histidine or a serine

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 <223> wherein Xaa at position 42 is a leucine, a methionine or a phenyl
 alanine

 <220>
 <221> misc_feature
 <223> wherein Xaa at position 43 is an asparagine or a lysine

 <220>
 <221> misc_feature
 <223> wherein Xaa at position 44 is a serine, an alanine or a proline

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 <223> wherein Xaa at position 45 is a threonine or a serine

 <220>
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 <223> wherein Xaa at position 49 is an isoleucine, a valine or a threon
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 <223> wherein Xaa at position 50 is a valine, an isoleucine or a leucine

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 <223> wherein Xaa at position 52 is a threonine or a serine

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 <223> wherein Xaa at position 53 is a leucine or a isoleucine

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 <223> wherein Xaa at position 55 is an asparagine, a histidine or an ar
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 <223> wherein Xaa at position 56 is a serine, an alanine, a phenylalani
 ne or an asparagine

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 <223> wherein Xaa at position 59 is a serine or a proline

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 <223> wherein Xaa at position 60 is a glycine or a glutamic acid

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 <223> wherein xaa at position 61 is a lysine, a glutamine, a threonine
 or a serine

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 <223> wherein Xaa at position 62 is an isoleucine or a valine

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 <223> wherein Xaa at position 64 is a lysine or a glutamic acid

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 <223> wherein Xaa at position 65 is an alanine, a proline or a serine

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 <223> wherein Xaa at position 68 is a valine or an alanine

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 <223> wherein Xaa at position 70 is a threonine or a glutamic acid

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 <223> wherein Xaa at position 71 is a glutamic acid, a glutamine or a
 lysine

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 <223> wherein Xaa at position 72 is a leucine or a methionine

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 <221> misc_feature
 <223> wherein Xaa at position 73 is a serine, an asparagine or an aspartic acid

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 <223> wherein Xaa at position 74 is an alanine, a serine or a proline

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 <223> wherein Xaa at position 75 is an isoleucine, a leucine or a valine

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 <223> wherein Xaa at position 76 is a serine or an alanine

<220>
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 <223> wherein Xaa at position 77 is a methionine, a valine or an isoleucine

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 <223> wherein Xaa at position 79 is a phenylalanine or a tyrosine

<220>
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 <223> wherein Xaa at position 80 is a leucine, a tyrosine or a phenylalanine

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 <223> wherein Xaa at position 81 is an aspartic acid or an asparagine

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 <223> wherein Xaa at position 82 is a glutamic acid, an asparagine or an aspartic acid

<220>
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 <223> wherein Xaa at position 83 is a glutamine or an asparagine

<220>

<221> misc_feature
 <223> wherein Xaa at position 84 is a glutamic acid, a glutamine, a serine or a lysine

<220>
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 <223> wherein Xaa at position 85 is an asparagine or a lysine

<220>
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 <223> wherein Xaa at position 87 is a leucine or an isoleucine

<220>
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 <223> wherein Xaa at position 89 is a lysine or an arginine

<220>
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 <223> wherein Xaa at position 90 is an asparagine, a lysine or a histidine

<220>
 <221> misc_feature
 <223> wherein Xaa at position 92 is a glutamine, a glutamic acid, an arginine or a proline

<220>
 <221> misc_feature
 <223> wherein Xaa at position 93 is an aspartic acid, a glutamic acid or an asparagin

<220>
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 <223> wherein Xaa at position 95 is a valine or a threonine

<220>
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 <223> wherein Xaa at position 97 is a glutamic acids, an aspartic acid or an arginin

<220>
 <221> misc_feature
 <223> wherein Xaa at position 98 is a glycine, an alanine, a serine or a glutamic acid

<220>
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<223> wherein Xaa at position 100 is a glycine or a histidine

<220>

<221> misc_feature

<223> wherein Xaa at position 102 is a an arginine or a histidine

<400> 6

Cys Xaa Xaa Xaa Xaa Leu Xaa Asp Phe Xaa Asp Xaa Gly Trp Xaa Xaa
1 5 10 15

Trp Xaa Xaa Xaa Pro Xaa Gly Xaa Xaa Ala Xaa Tyr Cys Xaa Gly Xaa
20 25 30

Cys Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn His Ala Xaa
35 40 45

Xaa Gln Xaa Xaa Val Xaa Xaa Xaa Asn Xaa Xaa Xaa Xaa Pro Xaa Xaa
50 55 60

Cys Cys Xaa Pro Thr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa
65 70 75 80

Xaa Xaa Xaa Xaa Xaa Val Xaa Lys Xaa Xaa Xaa Xaa Xaa Val Xaa Xaa
85 90 95

Xaa Xaa Gly Xaa Arg
100

<210> 7

<211> 102

<212> PRT

<213> Artificial Sequence

<220>

<223> Vg1 protein sequence with osteogenic activity

<400> 7

Cys Lys Lys Arg His Leu Tyr Val Glu Phe Lys Asp Val Gly Trp Gln
1 5 10 15

Asn Trp Val Ile Ala Pro Gln Gly Tyr Met Ala Asn Tyr Cys Tyr Gly
20 25 30

Glu Cys Pro Tyr Pro Leu Thr Glu Ile Leu Asn Gly Ser Asn His Ala
35 40 45

Ile Leu Gln Thr Leu Val His Ser Ile Glu Pro Glu Asp Ile Pro Leu
50 55 60

Pro Cys Cys Val Pro Thr Lys Met Ser Pro Ile Ser Met Leu Phe Tyr
65 70 75 80

Asp Asn Asn Asp Asn Val Val Leu Arg His Tyr Glu Asn Met Ala Val

	85	90	95
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Asp Glu Cys Gly Cys Arg
 100

<210> 8
 <211> 102
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> DPP protein sequence with osteogenic activity

<400> 8

Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp			
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Asp Trp Ile Val Ala Pro Leu Gly Tyr Asp Ala Tyr Tyr Cys His Gly			
	20	25	30

Lys Cys Pro Phe Pro Leu Ala Asp His Phe Asn Ser Thr Asn His Ala			
	35	40	45

Val Val Gln Thr Leu Val Asn Asn Asn Asn Pro Gly Lys Val Pro Lys			
	50	55	60

Ala Cys Cys Val Pro Thr Gln Leu Asp Ser Val Ala Met Leu Tyr Leu			
65	70	75	80

Asn Asp Gln Ser Thr Val Val Leu Lys Asn Tyr Gln Glu Met Thr Val			
	85	90	95

Val Gly Cys Gly Cys Arg
 100

<210> 9
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> OP1 protein sequence with osteogenic activity

<400> 9

His Gln Arg Gln Ala Cys Lys Lys His Glu Leu Tyr Val Ser Phe Arg			
1	5	10	15

Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala Pro Glu Gly Tyr Ala Ala			
	20	25	30

Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro Leu Asn Ser Tyr Met Asn			
	35	40	45

Ala Thr Asn His Ala Ile Val Gln Thr Leu Val His Phe Ile Asn Pro			
	50	55	60

Glu Thr Val Pro Lys Pro Cys Cys Ala Pro Thr Gln Leu Asn Ala Ile
65 70 75 80

Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn Val Ile Leu Lys Lys Tyr
85 90 95

Arg Asn Met Val Val Arg Ala Cys Gly Cys His
100 105

<210> 10
<211> 103
<212> PRT
<213> Artificial Sequence

<220>
<223> CBP-2a protein sequence with osteogenic activity

<400> 10

Cys Lys Arg His Pro Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn
1 5 10 15

Asp Trp Ile Val Ala Pro Pro Gly Tyr His Ala Phe Tyr Cys His Gly
20 25 30

Glu Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala
35 40 45

Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Lys Ile Pro Lys Ala
50 55 60

Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Tyr
65 70 75 80

Leu Asp Glu Asn Glu Lys Val Val Leu Lys Asn Tyr Gln Asp Met Val
85 90 95

Val Glu Gly Cys Gly Cys Arg
100

<210> 11
<211> 100
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<220>
<223> CBMP-2b protein sequence with osteogenic activity

<400> 11

Cys Arg Arg His Ser Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asn
1 5 10 15

Asp Trp Ile Val Ala Pro Pro Gly Tyr Gln Ala Phe Tyr Cys His Gly
20 25 30

Asp Cys Pro Phe Pro Leu Ala Asp His Leu Asn Ser Thr Asn His Ala
 35 40 45
 Ile Val Gln Thr Leu Val Asn Ser Val Asn Ser Ile Pro Lys Ala Cys
 50 55 60
 Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu
 65 70 75 80
 Tyr Asp Lys Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly
 85 90 95
 Cys Gly Cys Arg
 100

<210> 12
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<220>
 <223> CBMP-3

<400> 12

Cys Ala Arg Arg Tyr Leu Lys Val Asp Phe Ala Asp Ile Gly Trp Ser
 1 5 10 15
 Glu Trp Ile Ile Ser Pro Lys Ser Phe Asp Ala Tyr Tyr Cys Ser Gly
 20 25 30
 Ala Cys Gln Phe Pro Met Pro Lys Ser Leu Lys Pro Ser Asn His Ala
 35 40 45
 Thr Ile Gln Ser Ile Val Arg Ala Val Gly Val Val Pro Gly Ile Pro
 50 55 60
 Glu Pro Cys Cys Val Pro Glu Lys Met Ser Ser Leu Ser Ile Leu Phe
 65 70 75 80
 Phe Asp Glu Asn Lys Asn Val Val Leu Lys Val Tyr Pro Asn Met Thr
 85 90 95
 Val Glu Ser Cys Ala Cys Arg
 100

<210> 13
 <211> 98
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<220>
 <223> COP1

<400> 13

Leu Tyr Val Asp Phe Gln Arg Asp Val Gly Trp Asp Asp Trp Ile Ile

1		5		10		15									
Ala	Pro	Val	Asp	Phe	Asp	Ala	Tyr	Tyr	Cys	Ser	Gly	Ala	Cys	Gln	Phe
			20					25					30		
Pro	Ser	Ala	Asp	His	Phe	Asn	Ser	Thr	Asn	His	Ala	Val	Val	Gln	Thr
		35					40					45			
Leu	Val	Asn	Asn	Met	Asn	Pro	Gly	Lys	Val	Pro	Lys	Pro	Cys	Cys	Val
	50					55					60				
Pro	Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Ser
65					70					75					80
Thr	Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Thr	Val	Val	Gly	Cys	Gly
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Cys Arg

<210> 14
 <211> 98
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> COP3

<400> 14

Leu	Tyr	Val	Asp	Phe	Gln	Arg	Asp	Val	Gly	Trp	Asp	Asp	Trp	Ile	Val
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Ala	Pro	Pro	Gly	Tyr	Gln	Ala	Phe	Tyr	Cys	Ser	Gly	Ala	Cys	Gln	Phe
			20					25					30		
Pro	Ser	Ala	Asp	His	Phe	Asn	Ser	Thr	Asn	His	Ala	Val	Val	Gln	Thr
		35					40					45			
Leu	Val	Asn	Asn	Met	Asn	Pro	Gly	Lys	Val	Pro	Lys	Pro	Cys	Cys	Val
	50					55					60				
Pro	Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Glu
65					70					75					80
Lys	Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Val	Val	Glu	Gly	Cys	Gly
				85					90					95	

Cys Arg

<210> 15
 <211> 97
 <212> PRT
 <213> Artificial Sequence

<220>

<223> COP4

<400> 15

Leu	Tyr	Val	Asp	Phe	Ser	Asp	Val	Gly	Trp	Asp	Asp	Trp	Ile	Val	Ala	
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Pro	Pro	Gly	Tyr	Gln	Ala	Phe	Tyr	Cys	Ser	Gly	Ala	Cys	Gln	Phe	Pro	
			20					25					30			
Ser	Ala	Asp	His	Phe	Asn	Ser	Thr	Asn	His	Ala	Val	Val	Gln	Thr	Leu	
		35					40					45				
Val	Asn	Asn	Met	Asn	Pro	Gly	Lys	Val	Pro	Lys	Pro	Cys	Cys	Val	Pro	
	50					55					60					
Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Glu	Lys	
65					70					75					80	
Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Val	Val	Glu	Gly	Cys	Gly	Cys	
				85					90					95		

Arg

<210> 16

<211> 97

<212> PRT

<213> Artificial Sequence

<220>

<223> COP16

<400> 16

Leu	Tyr	Val	Asp	Phe	Ser	Asp	Val	Gly	Trp	Asp	Asp	Trp	Ile	Val	Ala	
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Pro	Pro	Gly	Tyr	Gln	Ala	Phe	Tyr	Cys	Ser	Gly	Ala	Cys	Gln	Phe	Pro	
			20					25					30			
Ser	Ala	Asp	His	Phe	Asn	Ser	Thr	Asn	His	Ala	Val	Val	Gln	Thr	Leu	
		35					40					45				
Val	Asn	Asn	Met	Asn	Pro	Gly	Lys	Val	Pro	Lys	Pro	Cys	Cys	Val	Pro	
	50					55					60					
Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Glu	Lys	
65					70					75					80	
Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Val	Val	Glu	Gly	Cys	Gly	Cys	
				85					90					95		

Arg

<210> 17

<223> COP4

<400> 15

Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala
1 5 10 15

Pro Pro Gly Tyr Gln Ala Phe Tyr Cys Ser Gly Ala Cys Gln Phe Pro
20 25 30

Ser Ala Asp His Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
35 40 45

Val Asn Asn Met Asn Pro Gly Lys Val Pro Lys Pro Cys Cys Val Pro
50 55 60

Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys
65 70 75 80

Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys
85 90 95

Arg

<210> 16

<211> 97

<212> PRT

<213> Artificial Sequence

<220>

<223> COP16

<400> 16

Leu Tyr Val Asp Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala
1 5 10 15

Pro Pro Gly Tyr Gln Ala Phe Tyr Cys Ser Gly Ala Cys Gln Phe Pro
20 25 30

Ser Ala Asp His Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu
35 40 45

Val Asn Asn Met Asn Pro Gly Lys Val Pro Lys Pro Cys Cys Val Pro
50 55 60

Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys
65 70 75 80

Val Val Leu Lys Asn Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys
85 90 95

Arg

<210> 17

<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 17

Ser Phe Asp Ala Tyr Tyr Cys Ser Gly Ala Cys Gln Phe Pro Met Pro
1 5 10 15

Lys

<210> 18
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 18

Ser Leu Lys Pro Ser Asn Tyr Ala Thr Ile Gln Ser Ile Val
1 5 10

<210> 19
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 19

Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu Tyr Leu
1 5 10 15

Asp Glu Asn Glu Lys
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<210> 20
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 20

Met Ser Ser Leu Ser Ile Leu Phe Phe Asp Glu Asn Lys
1 5 10

<210> 21
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 21

Ser Gln Glu Leu Tyr Val Asp Phe Gln Arg
1 5 10

<210> 22
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 22

Phe Leu His Cys Gln Phe Ser Glu Arg Asn Ser
1 5 10

<210> 23
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 23

Thr Val Gly Gln Leu Asn Glu Gln Ser Ser Glu Pro Asn Ile Tyr
1 5 10 15

<210> 24
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
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<400> 24

Leu Tyr Asp Pro Met Val Val
1 5

<210> 25
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
 <223> peptide fragment

 <400> 25

 Val Gly Val Val Pro Gly Ile Pro Glu Pro Cys Cys Val Pro Glu
 1 5 10 15

 <210> 26
 <211> 7
 <212> PRT
 <213> Artificial Sequence

 <220>
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 <400> 26

 Val Asp Phe Ala Asp Ile Gly
 1 5

 <210> 27
 <211> 9
 <212> PRT
 <213> Artificial Sequence

 <220>
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 <400> 27

 Val Pro Lys Pro Cys Cys Ala Pro Thr
 1 5

 <210> 28
 <211> 7
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> peptide fragment

 <400> 28

 Ile Asn Ile Ala Asn Tyr Leu
 1 5

 <210> 29
 <211> 13
 <212> PRT
 <213> Artificial Sequence

 <220>
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 <400> 29

Asp Asn His Val Leu Thr Met Phe Pro Ile Ala Ile Asn
 1 5 10

<210> 30
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> peptide fragment

<220>
 <221> misc_feature
 <223> wherein Xaa at position 15 is any amino acid

<400> 30

Asp Glu Gln Thr Leu Lys Lys Ala Arg Arg Lys Gln Trp Ile Xaa Pro
 1 5 10 15

<210> 31
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> peptide fragment

<220>
 <221> misc_feature
 <223> wherein Xaa at positions 4 and 10 is any amino acid

<400> 31

Asp Ile Gly Xaa Ser Glu Trp Ile Ile Xaa Pro
 1 5 10

<210> 32
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> peptide fragment

<220>
 <221> misc_feature
 <223> wherein Xaa at positions 15 and 16 is any amino acid

<400> 32

Ser Ile Val Arg Ala Val Gly Val Pro Gly Ile Pro Glu Pro Xaa Xaa
 1 5 10 15

Val

<210> 33
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<220>
<221> misc_feature
<223> wherein Xaa at position 2 is any amino acid

<400> 33

Asp Xaa Ile Val Ala Pro Pro Gln Tyr His Ala Phe Tyr
1 5 10

<210> 34
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<400> 34

Asp Glu Asn Lys Asn Val Val Leu Lys Val Tyr Pro Asn Met Thr Val
1 5 10 15

Glu

<210> 35
<211> 18
<212> PRT
<213> Artificial Sequence

<220>
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<220>
<221> misc_feature
<223> wherein Xaa at positions 13 and 16 is any amino acid

<400> 35

Ser Gln Thr Leu Gln Phe Asp Glu Gln Thr Leu Lys Xaa Ala Arg Xaa
1 5 10 15

Lys Gln

<210> 36
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<220>
<221> misc_feature
<223> wherein Xaa at position 19 is any amino acid

<400> 36

Asp Glu Gln Thr Leu Lys Lys Ala Arg Arg Lys Gln Trp Ile Glu Pro
1 5 10 15

Arg Asn Xaa Ala Arg Arg Tyr Leu
20

<210> 37
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<220>
<221> misc_feature
<223> wherein Xaa at positions 12, 14, 17 and 18 is any amino acid

<400> 37

Ala Arg Arg Lys Gln Trp Ile Glu Pro Pro Asn Xaa Ala Xaa Arg Tyr
1 5 10 15

Xaa Xaa Val Asp
20

<210> 38
<211> 23
<212> PRT
<213> Artificial Sequence

<220>
<223> peptide fragment

<220>
<221> misc_feature
<223> wherein Xaa at positions 2, 8, 10, 12, 13, 19, 21 and 22 is any amino acid

<400> 38

Arg Xaa Gln Trp Ile Glu Pro Xaa Asn Xaa Ala Xaa Xaa Tyr Leu Lys
1 5 10 15

Val Asp Xaa Ala Xaa Xaa Gly
20

<210> 39

<211> 97

<212> PRT

<213> Artificial Sequence

<220>

<223> OP1 shorter sequence

<400> 39

Leu Tyr Val Ser Phe Arg Asp Leu Gly Trp Gln Asp Trp Ile Ile Ala
1 5 10 15

Pro Glu Gly Tyr Ala Ala Tyr Tyr Cys Glu Gly Glu Cys Ala Phe Pro
20 25 30

Leu Asn Ser Tyr Met Asn Ala Thr Asn His Ala Ile Val Gln Thr Leu
35 40 45

Val His Phe Ile Asn Pro Glu Thr Val Pro Lys Pro Cys Cys Ala Pro
50 55 60

Thr Gln Leu Asn Ala Ile Ser Val Leu Tyr Phe Asp Asp Ser Ser Asn
65 70 75 80

Val Ile Leu Lys Lys Tyr Arg Asn Met Val Val Arg Ala Cys Gly Cys
85 90 95

His

<210> 40

<211> 4805

<212> DNA

<213> Artificial Sequence

<220>

<223> genomic sequence of OP1

<220>

<221> misc_feature

<223> approximately 1000 bases are missing between position
1882 and 1883

<400> 40

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aagcagactg ccgttttcta tatgggatga gccttcacag ggcagccagt tgggatgggt	240
tgaggtttgg ctgtagacat cagaaaccca agtcaaatgc gcttcaacca gtagaaaatt	300
caccagcccc cagagctaag gttgggtgga cattaggggt ggttgatcca ggagctcaac	360
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<220>
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<210> 42
 <211> 314
 <212> DNA
 <213> Artificial Sequence

<220>
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<400> 42
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<210> 43
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<220>
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<220>
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 Asp Trp Ile Ile Ala Pro Val Asp Phe Asp Ala Tyr Tyr Cys Ser Gly
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 Ala Cys Gln Phe Pro Ser Ala Asp His Phe Asn Ser Thr Asn His Ala

35					40					45						
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Pro	Cys	Cys	Val	Pro	Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu	
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Asp	Glu	Asn	Ser	Thr	Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Thr	Val	
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<210> 44
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<400> 44

Asp	Pro	Asn	Gly	Leu	Tyr	Val	Asp	Phe	Gln	Arg	Asp	Val	Gly	Trp	Asp
1				5					10					15	
Asp	Trp	Ile	Ile	Ala	Pro	Val	Asp	Phe	Asp	Ala	Tyr	Tyr	Cys	Ser	Gly
			20					25					30		
Ala	Cys	Gln	Phe	Pro	Ser	Ala	Asp	His	Phe	Asn	Ser	Thr	Asn	His	Ala
		35					40					45			
Val	Val	Gln	Thr	Leu	Val	Asn	Asn	Met	Asn	Pro	Gly	Lys	Val	Pro	Lys
	50					55					60				
Pro	Cys	Cys	Val	Pro	Thr	Glu	Leu	Ser	Ala	Ile	Ser	Met	Leu	Tyr	Leu
65					70				75					80	
Asp	Glu	Asn	Ser	Thr	Val	Val	Leu	Lys	Asn	Tyr	Gln	Glu	Met	Thr	Val
				85					90					95	
Val	Gly	Cys	Gly	Cys	Arg										
100															

<210> 45
 <211> 4
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Hinge region

<400> 45

Asp Pro Asn Gly

1 5

<210> 46

<211> 106

<212> PRT

<213> Artificial Sequence

<220>

<223> beta-inhibin-a

<400> 46

Cys Cys Lys Lys Gln Phe Phe Val Ser Phe Lys Asp Ile Gly Trp Asn
1 5 10 15

Asp Trp Ile Ile Ala Pro Ser Gly Tyr His Ala Asn Tyr Cys Glu Gly
20 25 30

Glu Cys Pro Ser His Ile Ala Gly Thr Ser Gly Ser Ser Leu Ser Phe
35 40 45

His Ser Thr Val Ile Asn His Tyr Arg Met Arg Gly His Ser Pro Phe
50 55 60

Ala Asn Leu Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met Ser
65 70 75 80

Met Leu Tyr Tyr Asp Asp Gly Gln Asn Ile Ile Lys Lys Asp Ile Gln
85 90 95

Asn Met Ile Val Glu Glu Cys Gly Cys Ser
100 105

<210> 47

<211> 105

<212> PRT

<213> Artificial Sequence

<220>

<223> beta-inhibin-b

<400> 47

Cys Cys Arg Gln Gln Phe Phe Ile Asp Phe Arg Ile Gly Trp Asn Asp
1 5 10 15

Trp Ile Ile Ala Pro Thr Gly Tyr Tyr Gly Asn Tyr Cys Glu Gly Ser
20 25 30

Cys Pro Ala Tyr Leu Ala Gly Val Pro Gly Ser Ala Ser Ser Phe His

	35		40		45											
Thr	Ala	Val	Val	Asn	Gln	Tyr	Arg	Met	Arg	Gly	Leu	Asn	Pro	Gly	Thr	
	50					55					60					
Lys	Val	Asn	Ser	Cys	Cys	Ile	Pro	Thr	Lys	Leu	Ser	Thr	Met	Ser	Met	
65					70					75					80	
Leu	Tyr	Phe	Asp	Asp	Glu	Tyr	Asn	Ile	Val	Lys	Arg	Asp	Val	Pro	Asn	
				85					90					95		
Met	Ile	Val	Glu	Glu	Cys	Gly	Cys	Ala								
			100					105								

<210> 48
 <211> 99
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TGF-beta-1

<400> 48

Cys	Cys	Val	Arg	Gln	Leu	Tyr	Ile	Asp	Phe	Arg	Lys	Asp	Leu	Gly	Trp
1				5					10					15	
Lys	Trp	Ile	His	Glu	Pro	Lys	Gly	Tyr	His	Ala	Asn	Phe	Cys	Leu	Gly
			20					25					30		
Pro	Cys	Pro	Tyr	Ile	Trp	Ser	Leu	Leu	Asp	Thr	Gln	Tyr	Ser	Lys	Val
		35					40					45			
Leu	Ala	Leu	Tyr	Asn	Gln	His	Asn	Pro	Gly	Ala	Ser	Ala	Ala	Pro	Cys
	50					55					60				
Cys	Val	Pro	Gln	Ala	Leu	Glu	Pro	Leu	Pro	Ile	Val	Tyr	Tyr	Val	Gly
65					70					75					80
Arg	Lys	Pro	Lys	Val	Glu	Gln	Leu	Ser	Asn	Met	Ile	Val	Arg	Ser	Cys
				85					90					95	

Lys Cys Ser

<210> 49
 <211> 99
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TGF-beta-2

<400> 49

Cys	Cys	Leu	Arg	Pro	Leu	Tyr	Ile	Asp	Phe	Lys	Arg	Asp	Leu	Gly	Trp
1				5					10					15	

Lys Trp Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly
 20 25 30
 Ala Cys Pro Tyr Leu Trp Ser Leu Ser Asp Thr Gln His Ser Arg Val
 35 40 45
 Leu Ser Leu Tyr Asn Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys
 50 55 60
 Cys Val Ser Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly
 65 70 75 80
 Lys Thr Pro Lys Ile Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys
 85 90 95

Lys Cys Ser

<210> 50
 <211> 99
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TGF-beta-3

<400> 50

Cys Cys Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp
 1 5 10 15
 Lys Trp Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly
 20 25 30
 Pro Cys Pro Tyr Leu Arg Ser Leu Ala Asp Thr Thr His Ser Thr Val
 35 40 45
 Leu Gly Leu Tyr Asn Thr Leu Asn Pro Glu Ala Ser Ala Ser Pro Cys
 50 55 60
 Cys Val Pro Gln Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Val Gly
 65 70 75 80
 Arg Thr Pro Lys Val Glu Gln Leu Ser Asn Met Val Val Lys Ser Cys
 85 90 95

Lys Cys Ser

<210> 51
 <211> 99
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> MIS

<400> 51

Cys Ala Leu Arg Glu Leu Ser Val Asp Leu Arg Ala Glu Arg Ser Val
1 5 10 15

Leu Ile Pro Glu Thr Tyr Gln Ala Asn Asn Cys Gln Gly Val Cys Gly
20 25 30

Trp Pro Gln Ser Asp Arg Asn Pro Arg Tyr Gly Asn His Val Val Leu
35 40 45

Leu Leu Lys Met Gln Ala Arg Gly Ala Ala Leu Ala Arg Pro Pro Cys
50 55 60

Cys Val Pro Thr Ala Tyr Ala Gly Lys Leu Leu Ile Ser Leu Ser Glu
65 70 75 80

Glu Arg Ile Ser Ala His His Val Pro Asn Met Val Ala Thr Glu Cys
85 90 95

Gly Cys Arg

<210> 52

<211> 103

<212> PRT

<213> Artificial Sequence

<220>

<223> Alpha-inhibin

<220>

<221> misc_feature

<223> wherein Xaa at position 93 is a threonine, a valine or a proline

<400> 52

Cys His Arg Val Ala Leu Asn Ile Ser Phe Gln Glu Leu Gly Trp Glu
1 5 10 15

Arg Trp Ile Val Tyr Pro Pro Ser Phe Ile Phe His Tyr Cys His Gly
20 25 30

Gly Cys Gly Leu His Ile Pro Pro Asn Leu Ser Leu Pro Val Pro Gly
35 40 45

Ala Pro Pro Thr Pro Ala Gln Pro Tyr Ser Leu Leu Pro Gly Ala Gln
50 55 60

Pro Cys Cys Ala Ala Leu Pro Gly Thr Met Arg Pro Leu His Val Arg
65 70 75 80

Thr Thr Ser Asp Gly Gly Tyr Ser Phe Lys Tyr Glu Xaa Asn Leu Leu
85 90 95

Thr Gln His Cys Ala Cys Ile
100

<210> 53
<211> 861
<212> DNA
<213> Artificial Sequence

<220>
<223> COP-5 fusion protein

<220>
<221> CDS
<222> (1)..(852)

<400> 53	
atg aaa gca att ttc gta ctg aaa ggt tca ctg gac aga gat ctg gac	48
Met Lys Ala Ile Phe Val Leu Lys Gly Ser Leu Asp Arg Asp Leu Asp	
1 5 10 15	
tct cgt ctg gat ctg gac gtt cgt acc gac cac aaa gac ctg tct gat	96
Ser Arg Leu Asp Leu Asp Val Arg Thr Asp His Lys Asp Leu Ser Asp	
20 25 30	
cac ctg gtt ctg gtc gac ctg gct cgt aac gac ctg gct cgt atc gtt	144
His Leu Val Leu Val Asp Leu Ala Arg Asn Asp Leu Ala Arg Ile Val	
35 40 45	
act ccc ggg tct cgt tac gtt gcg gat ctg gaa ttc atg gct gac aac	192
Thr Pro Gly Ser Arg Tyr Val Ala Asp Leu Glu Phe Met Ala Asp Asn	
50 55 60	
aaa ttc aac aag gaa cag cag aac gcg ttc tac gag atc ttg cac ctg	240
Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu	
65 70 75 80	
ccg aac ctg aac gaa gag cag cgt aac ggc ttc atc caa agc ttg aag	288
Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu Lys	
85 90 95	
gat gag ccc tct cag tct gcg aat ctg cta gcg gat gcc aag aaa ctg	336
Asp Glu Pro Ser Gln Ser Ala Asn Leu Leu Ala Asp Ala Lys Lys Leu	
100 105 110	
aac gat gcg cag gca ccg aaa tcg gat cag ggg caa ttc atg gct gac	384
Asn Asp Ala Gln Ala Pro Lys Ser Asp Gln Gly Gln Phe Met Ala Asp	
115 120 125	
aac aaa ttc aac aag gaa cag cag aac gcg ttc tac gag atc ttg cac	432
Asn Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His	
130 135 140	
ctg ccg aac ctg aac gaa gag cag cgt aac ggc ttc atc caa agc ttg	480
Leu Pro Asn Leu Asn Glu Glu Gln Arg Asn Gly Phe Ile Gln Ser Leu	
145 150 155 160	

aag gat gag ccc tct cag tct gcg aat ctg cta gcg gat gcc aag aaa	528
Lys Asp Glu Pro Ser Gln Ser Ala Asn Leu Leu Ala Asp Ala Lys Lys	
165 170 175	
ctg aac gat gcg cag gca ccg aag gat cct aat ggg ctg tac gtc gac	576
Leu Asn Asp Ala Gln Ala Pro Lys Asp Pro Asn Gly Leu Tyr Val Asp	
180 185 190	
ttc agc gac gtg ggc tgg gac gac tgg att gtg gcc cca cca ggc tac	624
Phe Ser Asp Val Gly Trp Asp Asp Trp Ile Val Ala Pro Pro Gly Tyr	
195 200 205	
cag gcc ttc tac tgc cat ggc gaa tgc cct ttc ccg cta gcg gat cac	672
Gln Ala Phe Tyr Cys His Gly Glu Cys Pro Phe Pro Leu Ala Asp His	
210 215 220	
ttc aac agc acc aac cac gcc gtg gtg cag acc ctg gtg aac tct gtc	720
Phe Asn Ser Thr Asn His Ala Val Val Gln Thr Leu Val Asn Ser Val	
225 230 235 240	
aac tcc aag atc cct aag gct tgc tgc gtg ccc acc gag ctg tcc gcc	768
Asn Ser Lys Ile Pro Lys Ala Cys Cys Val Pro Thr Glu Leu Ser Ala	
245 250 255	
atc agc atg ctg tac ctg gac gag aat gag aag gtg gtg ctg aag aac	816
Ile Ser Met Leu Tyr Leu Asp Glu Asn Glu Lys Val Val Leu Lys Asn	
260 265 270	
tac cag gag atg gta gta gag ggc tgc ggc tgc cgc taactgcag	861
Tyr Gln Glu Met Val Val Glu Gly Cys Gly Cys Arg	
275 280	

<210> 54
 <211> 284
 <212> PRT
 <213> Artificial Sequence

<400> 54

Met Lys Ala Ile Phe Val Leu Lys Gly Ser Leu Asp Arg Asp Leu Asp	
1 5 10 15	
Ser Arg Leu Asp Leu Asp Val Arg Thr Asp His Lys Asp Leu Ser Asp	
20 25 30	
His Leu Val Leu Val Asp Leu Ala Arg Asn Asp Leu Ala Arg Ile Val	
35 40 45	
Thr Pro Gly Ser Arg Tyr Val Ala Asp Leu Glu Phe Met Ala Asp Asn	
50 55 60	
Lys Phe Asn Lys Glu Gln Gln Asn Ala Phe Tyr Glu Ile Leu His Leu	

65					70						75				80
Pro	Asn	Leu	Asn	Glu	Glu	Gln	Arg	Asn	Gly	Phe	Ile	Gln	Ser	Leu	Lys
				85					90					95	
Asp	Glu	Pro	Ser	Gln	Ser	Ala	Asn	Leu	Leu	Ala	Asp	Ala	Lys	Lys	Leu
			100					105					110		
Asn	Asp	Ala	Gln	Ala	Pro	Lys	Ser	Asp	Gln	Gly	Gln	Phe	Met	Ala	Asp
		115					120					125			
Asn	Lys	Phe	Asn	Lys	Glu	Gln	Gln	Asn	Ala	Phe	Tyr	Glu	Ile	Leu	His
	130					135					140				
Leu	Pro	Asn	Leu	Asn	Glu	Glu	Gln	Arg	Asn	Gly	Phe	Ile	Gln	Ser	Leu
145					150					155					160
Lys	Asp	Glu	Pro	Ser	Gln	Ser	Ala	Asn	Leu	Leu	Ala	Asp	Ala	Lys	Lys
				165					170					175	
Leu	Asn	Asp	Ala	Gln	Ala	Pro	Lys	Asp	Pro	Asn	Gly	Leu	Tyr	Val	Asp
			180					185					190		
Phe	Ser	Asp	Val	Gly	Trp	Asp	Asp	Trp	Ile	Val	Ala	Pro	Pro	Gly	Tyr
		195					200					205			
Gln	Ala	Phe	Tyr	Cys	His	Gly	Glu	Cys	Pro	Phe	Pro	Leu	Ala	Asp	His
	210					215					220				
Phe	Asn	Ser	Thr	Asn	His	Ala	Val	Val	Gln	Thr	Leu	Val	Asn	Ser	Val
225					230					235					240
Asn	Ser	Lys	Ile	Pro	Lys	Ala	Cys	Cys	Val	Pro	Thr	Glu	Leu	Ser	Ala
				245					250					255	
Ile	Ser	Met	Leu	Tyr	Leu	Asp	Glu	Asn	Glu	Lys	Val	Val	Leu	Lys	Asn
		260						265					270		
Tyr	Gln	Glu	Met	Val	Val	Glu	Gly	Cys	Gly	Cys	Arg				
		275					280								

<210> 55

<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> BOP

<400> 55

Ser	Phe	Asp	Ala	Tyr	Tyr	Cys	Ser	Gly	Ala	Cys	Gln	Phe	Pro	Ser
1				5				10						15

<210> 56
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> DPP

<400> 56

Gly	Tyr	Asp	Ala	Tyr	Tyr	Cys	His	Gly	Lys	Cys	Pro	Phe	Phe	Leu
1				5				10						15

<210> 57
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Vg1

<400> 57

Gly	Tyr	Met	Ala	Asn	Tyr	Cys	Tyr	Gly	Glu	Cys	Pro	Tyr	Pro	Leu
1				5				10						15

<210> 58
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> inhibin

<400> 49

Gly	Tyr	His	Ala	Asn	Tyr	Cys	Glu	Gly	Glu	Cys	Pro	Ser	His	Ile
1				5				10						15

<210> 59
<211> 15
<212> PRT
<213> Artificial Sequence

<220>

<223> TGF-beta

<400> 59

Gly Tyr His Ala Asn Phe Cys Leu Gly Pro Cys Pro Tyr Ile Trp
1 5 10 15

<210> 60

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> BOP

<400> 60

Lys Arg Ala Cys Cys Val Pro Thr Glu Leu Ser Ala Ile Ser Met Leu
1 5 10 15

Tyr Leu Asp Glu Asn
20

<210> 61

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Vg1

<400> 61

Leu Pro Cys Cys Val Pro Thr Lys Met Ser Pro Ile Ser Met Leu Phe
1 5 10 15

Tyr Asp Asn Asn
20

<210> 62

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> inhibin

<400> 62

Lys Ser Cys Cys Val Pro Thr Lys Leu Arg Pro Met Ser Met Leu Tyr
1 5 10 15

Tyr Asp Asp Gly
20

<210> 63

<211> 19

<212> PRT
<213> Artificial Sequence

<220>
<223> TGF-beta

<400> 63

Ala Pro Cys Cys Val Pro Gln Ala Leu Glu Pro Leu Pro Ile Val Tyr
1 5 10 15

Tyr Val Gly

<210> 64
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> DPP

<400> 64

Lys Ala Cys Cys Val Pro Thr Gln Leu Asp Ser Val Ala Met Leu Tyr
1 5 10 15

Leu Asn Asp Gln
20

<210> 65
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> BOP

<400> 65

Leu Tyr Val Asp Phe
1 5

<210> 66
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> DPP

<400> 66

Leu Tyr Val Asp Phe
1 5

<210> 67

<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Vg1

<400> 57

Leu Tyr Val Glu Phe
1 5

<210> 68
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> TGF-beta

<400> 68

Leu Tyr Ile Asp Phe
1 5

<210> 69
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> inhibin

<400> 69

Phe Phe Val Ser Phe
1 5

<210> 70
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> N-terminal sequence

<400> 70

Cys Lys Arg His Pro
1 5

<210> 71
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> N-terminal sequence

<400> 71

Cys Arg Arg Lys Gln
1 5

<210> 72
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> N-terminal sequence

<400> 72

Cys Lys Arg His Glu
1 5